

**Notice of Allowability**

Application No.

10/657,932

Applicant(s)

ROGERS ET AL.

Examiner

Sudhaker B. Patel, D.Sc.Tech.

Art Unit

1624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/9/03.
2. ☒ The allowed claim(s) is/are 53-68.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

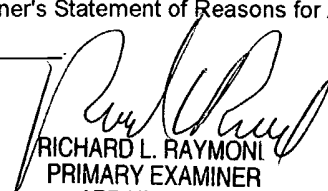
\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

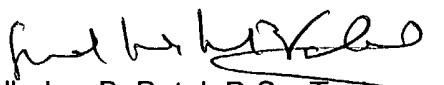
  
RICHARD L. RAYMONI  
PRIMARY EXAMINER  
ART UNIT 1624

### REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:
2. Applicants' preliminary amendment dated 9/9/03 is acknowledged. Applicants have cancelled claims 1-52 and presented new claims 53-68. Therefore, the claims under consideration are the claims 53-68 which are renumbered as claims 1-16 respectively.
3. The closest prior art of record reference Chandrakumar et al (WO 9952896) teaches making of heterocyclic glycyI beta-alanine derivatives as vitronectin antagonists. See Example 2 on page 95 which has a core:  
" Substituted pyridine-CO-NH-CH<sub>2</sub>-CO-NH-CH (CH<sub>2</sub>-COOH)-substituted phenyl".  
The reference differs from the instant compounds by not having hydrogenated stilbene core.
4. The other prior art reference Duggan et al (U.S.P. 5919792 dated 7/1999) teaches compounds with heterocycle-NH-CH<sub>2</sub>-aryl-CO-NH-CH<sub>2</sub>-HC (COOH)-NHSO<sub>2</sub>Ph (See columns 29-30, compound 2-5) and Pyridine-CH<sub>2</sub>-CH<sub>2</sub>-Phenyl-CO-NH-CH<sub>2</sub>-CH (COOH)-NH-SO<sub>2</sub>-Phenyl (See compound 5-10 in columns 41-42) and their utility as claimed herein. The ref. differs from the instant compounds by not having dihydrostilbene core as claimed herein.
5. The references either alone or in combination do not teach or indicate to arriving at the instant compounds having a core:  
" Substituted heterocycle-NH- (CH<sub>2</sub>) 3-O-Phenyl-SO<sub>2</sub>-NH-CH (-CH<sub>2</sub>-Phenyl)-CH<sub>2</sub>pyridine)-CH<sub>2</sub>-COOH". See instant Example 13 on page 78 and Example 14 on page 81. i.e. dihydrostilbene derivatives
6. Therefore, the instant invention is deemed to be novel and patentably distinct.
7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhaker B. Patel, D.Sc.Tech. whose telephone number is (571) 272-0671. The examiner can normally be reached on 6:30 to 5:00 pm (Monday-Thursday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Mukund J. Shah can be reached on (571) 272 0674 or Sr. Examiner Mr. Richard Raymond at (571) 272 0673 or Mr. James O. Wilson at (571) 272-0661.
9. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 4556 for regular communications and 703 308 4556 for After Final communications.
10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308

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1235. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sudhaker B. Patel, D.Sc. Tech.  
June 21, 2004



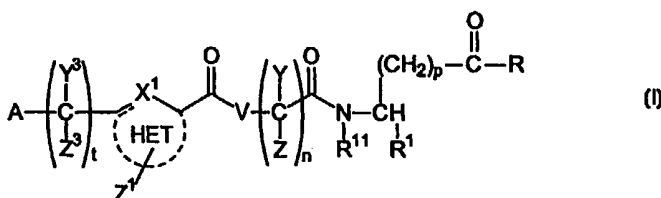
RICHARD L. RAYMOND  
MUKUNDA S. EXAMINER  
SUPERVISORY PATENT  
EXAMINER  
ART UNIT 1624/1623



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup>:</b> <b>C07D 401/12, A61K 31/44, C07K 5/023,</b> <b>C07D 213/82, 495/10, 409/12, 333/38,</b> <b>403/12, 417/12</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 99/52896</b>  <b>(43) International Publication Date:</b> 21 October 1999 (21.10.99)
<b>(21) International Application Number:</b> PCT/US99/04297  <b>(22) International Filing Date:</b> 9 April 1999 (09.04.99)  <b>(30) Priority Data:</b> 60/081,394      10 April 1998 (10.04.98)      US  <b>(71) Applicant (for all designated States except US):</b> G.D. SEARLE & CO. [US/US]; Corporate Patent Dept., P.O. Box 5110, Chicago, IL 60680-5110 (US).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> CHANDRAKUMAR, Nizal, Samuel [IN/US]; 15 Montgomery Lane, Vernon Hills, IL 60061 (US). DESAI, Bipinchandra, Nanubhai [US/US]; 200 Annapolis Drive, Vernon Hills, IL 60061 (US). DEVADAS, Balekudru [US/US]; 2175 Parasol Drive, Chesterfield, MO 63017 (US). HUFF, Renee [US/US]; 837 N. Lincoln Avenue, Park Ridge, IL 60068 (US). KHANNA, Ish, K. [US/US]; 149 Brandywine Court, Vernon Hills, IL 60061 (US). RAO, Shashidhar, N. [IN/US]; 43 Windsor Place, Mundelein, IL 60060 (US). RICO, Joseph, G. [US/US]; 524 Weatherby Terrace Drive, Ballwin, MO 63021 (US). ROGERS, Thomas, E. [US/US]; 755 Trago Creek Drive, Ballwin, MO 63021 (US). RUMINSKI, Peter,		G. [US/US]; 7687 Pierside Drive, Dardenne Prairie, MO 63366 (US). RUSSELL, Mark, Andrew [US/US]; 475 Cross Road, Gurnee, IL 60031 (US). YU, Yi [CN/US]; Apartment #GR, 9065 Gross Point Road, Skokie, IL 60077 (US). GASIECKI, Alan, Frank [US/US]; 105 Alexandria Drive, Vernon Hills, IL 60061 (US). MALECHA, James, W. [US/US]; 1121 Tracy Lane, Libertyville, IL 60048 (US). MIYASHIRO, Julie, M. [US/US]; 4654 W. Keeney #3W, Skokie, IL 60076 (US).  <b>(74) Agents:</b> KOVACEVIC, Cynthia, S. et al.; G.D. Searle & Co., Corporate Patent Dept., P.O. Box 5110, Chicago, IL 60680-5110 (US).  <b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report.

(54) Title: HETEROCYCLIC GLYCYL BETA-ALANINE DERIVATIVES AS VITRONECTIN ANTAGONISTS



## (57) Abstract

The present invention relates to a class of compounds represented by formula (I) or pharmaceutically acceptable salts thereof, pharmaceutical compositions containing such compounds and methods of treating conditions mediated by the  $\alpha_v\beta_3$  integrin.